

What is claimed is:

Ans B1
1. Device for making a connection in a "hermetic" environment between a cartridge 40 comprising a data recording and storage means and its receptacle 30 in a data storage or recording device for a severe environment, possibly being mounted on a land vehicle or a ship or an aircraft or a space vehicle of any type, characterized in that the connection is made by contact and not by insertion and that the contact is accomplished for each electrical contact by cooperation between a plug 10 mounted elastically by a means 11 on receptacle 30 and a stud 12, 16 or 18 mounted in a hermetic fashion on cartridge 40.

2. Process according to Claim 1, characterized in that the studs are so mounted that stud 12 (or 16 or 18) is positioned by its rod 45 in an opening made in wall 40 by means of a known glass welding 4 after which one deposits around head 46 a mold of protective material 60 such as a resin.

a
3. Process according to Claim 1 ~~or 2~~, characterized in that one makes the contact or the disconnect by engagement/disengagement of cartridge 40 and receptacle 30.

a15
4. Process according to ^{*claim 1*} ~~any of Claims 1 to 3~~, characterized in that the engagement process involves cushioning the engagement act by making clip or clips 100 slide (movement "A") in the "U"-shaped opening of engagement piece 110, 140, seeing to it that groove 105 will descend slightly lower than the corresponding protuberance 120 after which one terminates the engagement action by placing the contact face of cartridge 40 on the contact face of receptacle 30, movement "B," Figure 3b, and by positioning the two faces via a slight rise (movement "C") and by tight fitting of groove 105 with protuberance 120 at the end of this rising motion.

5. Process according to Claim 4, characterized in that during the engagement action, the cylindrical pin 120 rests on the edge of groove 105 and the compression effort that is applied when the cartridge compresses the plugs causes the pin to roll in the center of the groove.

6. Process according to Claim 5 ~~or 6~~, characterized in that engagement results in a perfect self-cleaning of the contact surfaces between the plug and the stud.

7. Data storage or recording device for a severe environment that can possibly be mounted on a land vehicle or a ship or an aircraft or a space vehicle of any type of the kind comprising a recording cartridge 40 (with hard disk or other data support) and a receptacle (or cartridge support) 30 that is "suspended" (that is to say, it is kept in position by preferably multidirectional shock absorbers), characterized in that the connection between the cartridge and its receptacle is made by contact and not by insertion and that the contact for each electrical contact is made by the cooperation of a plug 10 mounted elastically by means 11 on receptacle 30 and a stud 12, 16 or 18 mounted on cartridge 40 in a hermetic manner.

8. Data storage or recording device for a severe environment that can possibly be mounted on a land vehicle or a ship or an aircraft or a space vehicle of any type of the kind comprising a recording cartridge 40 (with hard disk or other data support) and a receptacle (or cartridge support) 30 that is "suspended" (that is to say, it is kept in position by preferably multidirectional shock absorbers), characterized in that:

- the connection between recording cartridge 40 and suspended receptacle 30 is made by as many couples of "plug 10"/"stud 12 or 16 or 18" as there are required contacts;

said plugs 10 go through the wall of receptacle 30 and present a protuberant portion with a spherical or rounded or similar shape;

and they are mounted on an shock absorption and return means 11

and said studs 12 or 16 or 18 go through the wall of the cartridge box 40 and present a slightly protuberant part with a concave shape 12, with a plane shape 16 or a slightly convex shape 18;

said plugs 10 and said studs 12, 16 or 18 are geometrically adapted in terms of shape and dimension to cooperate and create an effective electrical contact when one makes receptacle 30 and cartridge 40 face each other;

- cartridge 40 and receptacle 30 comprise engagement means capable of positioning plugs 10 and studs 12, 16, 18 opposite each other so as to make an effective electrical contact and to ensure the mechanical hold of cartridge 40.

9. Device according to Claim 7 ~~or 8~~, characterized in that plugs 10 have a head with a generally spherical or rounded shape at the top.

claim 7
10. Device according to ~~any of Claims 7 to 9~~, characterized in that the studs have a head 46 that is slightly concave (12), or in a more preferred manner a head (16), or in an even less preferred manner slightly convex (18).

Claim 7

11. Device according to ~~any of Claims 7 to 10~~, characterized in that the cushioning or return means 11 is a spring or a piston, preferably a piston.

Claim 7

12. Device according to ~~any of Claims 7 to 11~~, characterized in that the plugs (and, respectively, the studs) will preferably be positioned in a plate 95 of receptacle 30 (or, respectively, of the contact face of cartridge 40).

claim 7

13. Device according to ~~any of Claims 7 to 11~~, characterized in that one could provide several zones of corresponding plugs and studs 75 opposite each other.

claim 7

14. Device according to ~~any of Claims 7 to 13~~, characterized in that the studs are so mounted that stud 12 (or 16 or 18) is positioned by its rod 45 in an opening made in wall 40 by means of a known glass welding 4 after which one deposits around head 46 a mold of protective material 60 such as a resin.

claim 7

15. Device according to ~~any of Claims 7 to 14~~, characterized in that the stud will preferably be made of metal or a highly electricity-conducting alloy and will preferably comprise a fine gold coating 47 or a coating of a metal or equivalent alloy promoting electrical contact between plug and stud.

claim 7

16. Device according to ~~any of Claims 7 to 15~~, characterized in that cartridge 40 is integral in its lower part by at least one and preferably two (possibly more) clips 100 comprising a groove 105 capable of cooperating by tight fitting with a protuberant part 120 that is integral with an engagement piece 110, 140 in the shape of a "U," which itself is integral with receptacle 30, cooperation being governed by mechanical means such as the engagement movement of the clip or clips in the "U" leading to "pre-engagement" by a slightly exaggerated descent of the clip of the cartridge with respect to protuberance 120

followed by "final engagement" through the fact that said clip is raised again to lead to a tight fit of groove 105 and protuberance 120.

17. Device according to Claim 16, characterized in that protuberance 120 is a cylindrical pin and corresponding groove 105 is a semi-cylindrical groove so adapted as to receive pin 120 in a tight fitting.

18. Device according to Claim 16 ~~or 17~~, characterized in that during the engagement action, the cylindrical pin 120 rests on the edge of groove 105 and the compression effort that is applied when the cartridge compresses the plugs causes the pin to roll in the center of the groove.

19. Device according to ~~any of Claims 16 to 18~~, characterized in that the engagement action performs a self-cleaning of the contact surfaces between plug and stud.

20. Device according to ~~any of Claims 7 to 19~~, characterized in that it comprises a mechanical means for the temporary automatic locking of the [spring-back] shift (M) of receptacle 30 to protect the shock absorbers during the extraction phase and the phase in which the cartridge is put back in its receptacle.

21. Device according to Claim 20, characterized in that it comprises a mechanical means for the temporary automatic locking of [spring-back] shift (M) of receptacle 30 to protect the shock absorbers when one opens hood 70 of the box to get at the cartridge, the same means again permitting normal shifting (M) of receptacle 30 during the closing of the hood, that is to say, when one puts a cartridge back in place through engagement on the receptacle.

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22. Device according to Claim 20 ~~or 21~~, characterized in that said temporary locking means comprises a piece in the shape of a prism or cam 75 comprising an inclined face that is integral with hood 70 and a retractable chock 90 that is integral with a piece 85 constituting the mechanical safety unit considered, said piece itself being integral with a control rod 80 or a similar piece capable of cooperating with cam 75 via contact sliding on the inclined surface of said cam or prism, the entire piece forming the chock being mounted in a rotating manner around the longitudinal axis 87 of unit 85, and this assembly comprises a return means such as a spring or a similar device, tending to lower the chock 90 behind the contact face of receptacle 30 and the various geometries, shapes and positioning of the various pieces are adapted so that the opening of hood 70 (and thus of cam 75) according to movement (1) by sliding would release control rod 80, which then moves due to the action of the return means according to movement (2) to which corresponds movement (3) of chock 90, a movement that positions said chock 90 behind receptacle 30, the thickness and positioning of chock 90 being so adapted that in this position the shock absorption (or spring release shift) movement (M) of the receptacle will be impossible.

23. Device according to ~~any of Claims 20 to 22~~ ^{Claim 20}, characterized in that when one recloses the hood, the inverse movement raises chock 90, which is then positioned above the receptacle, thus again permitting the cushioning movement (M).

24. Device according to ~~any of Claims 7 to 23~~ ^{claim 7}, characterized in that the return force for plugs 10 by the return means of the piston type or the spring type is on the order of 1 N for each plug.

Claim 24

25. Device according to ~~any of Claims 20 to 24~~, characterized in that it comprises a means provided for automatically cutting the electrical power supply to the cartridge when hood 70 is open.

26. Device according to Claim 25, characterized in that said means will be an opening detection contact mounted partly on the hood and partly on the portion of the box that contains cartridge receptacle 30.

Claim 1

27. Applications of devices and procedures according to ~~any of Claims 1 to 25~~ for data recording and storage on the ground or mounted on a land vehicle or a ship or an aircraft or a space vehicle of any type.

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